This draft, August 2000, prepared by MA-31, has not been approved and is subject to modification. Project No. TRNG-0014

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DOE-STD-XXXX-2000
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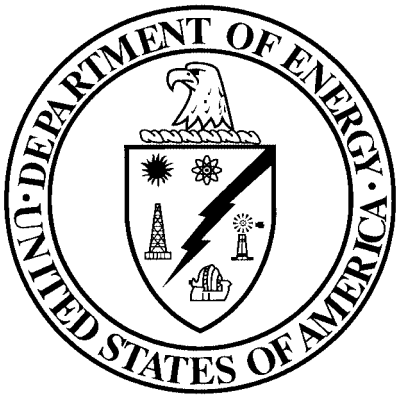
DOE STANDARD

# TECHNICAL PROGRAM MANAGER FUNCTIONAL AREA QUALIFICATION STANDARD

## DOE Defense Nuclear Facilities Technical Personnel




**U.S. Department of Energy**
**Washington, D.C. 20585**

**AREA TRNG**

## APPROVAL

The Federal Technical Capability Panel consists of senior Department of Energy managers responsible for overseeing the Federal Technical Capability Program. This Panel is responsible for reviewing and approving the Qualification Standard for Department-wide application. Approval of this Qualification Standard by the Federal Technical Capability Panel is indicated by signature below.

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Chairman
Federal Technical Capability Panel

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## ACKNOWLEDGMENT

The Office of Training and Human Resource Development is the Sponsor for the Technical Program Manager Functional Area Qualification Standard. The Sponsor is responsible for coordinating the development and/or review of the Functional Area Qualification Standard by subject matter experts to ensure that the technical content of the standard is accurate and adequate for Department-wide application for those involved in the management of technical personnel or programs. The Sponsor, in coordination with the Federal Technical Capability Panel, is also responsible for ensuring that the Functional Area Qualification Standard is maintained current.

The following subject matter experts (SMEs) participated in the development and/or review of this qualification standard:

| | |
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| Dave Roth | Office of Training and Human Resource Development (MA-31) |
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**FUNCTIONAL AREA:**

Technical Program Manager

**PURPOSE**

The Department's Federal Technical Capability Program Policy, issued by the Secretary in December 1998, commits the Department to strive continuously for technical excellence. The Technical Qualification Program, along with the supporting technical functional area qualification standards, complements the personnel processes that support the Department's drive for technical excellence. In support of this goal, the competency requirements defined in the technical functional area qualification standards should be aligned with and integrated into the recruitment and staffing processes for technical positions. The technical functional area qualification standards should form, in part, the primary basis for developing vacancy announcements, qualification requirements, crediting plans, interviewing questions, and other criteria associated with the recruitment, selection, and internal placement of technical personnel. Office of Personnel Management minimum qualifications standards will be greatly enhanced by application of appropriate materials from the technical functional area qualification standards.

The technical Functional Area Qualification Standards are not intended to replace the U.S. Office of Personnel Management's (OPM) Qualifications Standards nor other Departmental personnel standards, rules, plans, or processes. The primary purpose of the Technical Qualification Program is to ensure that employees have the requisite technical competency to support the mission of the Department. The Technical Qualification Program forms the basis for the development and assignment of DOE personnel responsible for ensuring the safe operation of defense nuclear facilities.

## APPLICABILITY

The Technical Program Manager Functional Area Qualification Standard establishes common functional area competency requirements for Department of Energy technical program management personnel who provide assistance, direction, guidance, oversight, or evaluation of contractor technical activities having an impact on the safe operation of defense nuclear facilities. The technical functional area qualification standard has been developed as a tool to assist DOE program and field offices in the development and implementation of the Technical Qualification Program in their organization. Program and field offices may choose to use this technical functional area qualification standard as-is, or they may use parts of it to facilitate the development of their own unique technical qualification standards. In either case, satisfactory and documented attainment of the competency requirements contained in this technical functional area qualification standard or similar standards ensures that technical program management personnel possess the requisite competence to fulfill their functional area duties and responsibilities. Office- or facility-specific qualification standards supplement this technical functional area qualification standard and establish unique operational competency requirements at the headquarters or field element, site, or facility level.

# IMPLEMENTATION

This Technical Functional Area Qualification Standard identifies the technical competency requirements for technical program management personnel. Although there are other competency requirements associated with the positions held by technical program management personnel, this Functional Area Qualification Standard is limited to identifying the specific technical competencies. The competency statements define the expected knowledge and/or skill that an individual must meet. Each of the competency statements is further explained by a listing of supporting knowledge and/or skill statements. **The supporting knowledge and/or skill statements are not requirements and do not necessarily have to be fulfilled to meet the intent of the competency.**

The competencies identify a familiarity level, a working level, or an expert level of knowledge; or they require the individual to demonstrate the ability to perform a task or activity. These levels are defined as follows:

> **Familiarity level** is defined as basic knowledge of or exposure to the subject or process adequate to discuss the subject or process with individuals of greater knowledge.
>
> **Working level** is defined as the knowledge required to monitor and assess operations/activities, to apply standards of acceptable performance, and to reference appropriate materials and/or expert advice as required to ensure the safety of Departmental activities.
>
> **Expert level** is defined as a comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance.
>
> **Demonstrate the ability** is defined as the actual performance of a task or activity in accordance with policy, procedures, guidelines, and/or accepted industry or Department practices.

Headquarters and Field elements shall establish a program and process to ensure technical program management personnel possess the competencies required of their position. That includes the competencies identified in this technical Functional Area Qualification Standard or a similar Standard developed by the organization. Documentation of the completion of the requirements of the Standard shall be included in the employee's training and qualification record.

Equivalencies may be granted for individual competencies based upon an objective evaluation of the employee's prior education, experience, and/or training. Equivalencies shall be granted in accordance with the policies and procedures of the program or field office. The supporting knowledge and/or skill statements, while not requirements, should be considered before granting equivalency for a competency.

Training shall be provided to employees in the Technical Qualification Program that do not meet the competencies contained in the technical Functional Area Qualification Standard. Departmental training will be based upon appropriate supporting knowledge and/or skill

statements similar to the ones listed for each of the competency statements. Headquarters and Field elements should use the supporting knowledge and/or skill statements as a basis for evaluating the content of any training courses used to provide individuals with the requisite knowledge and/or skill required to meet the technical Functional Area Qualification Standard competency statements.

## EVALUATION REQUIREMENTS

Attainment of the competencies listed in this technical functional area qualification standard should be documented by a qualifying official or the immediate supervisor of technical program management personnel using any of the following methods:

- Documented evaluation of equivalencies
- Written examination
- Documented oral evaluation
- Documented observation of performance

## CONTINUING EDUCATION, TRAINING AND PROFICIENCY

Technical program management personnel shall participate in continuing education and training as necessary to improve their performance and proficiency and ensure that they stay up-to-date on changing technology and new requirements. This may include courses and/or training provided by:

- Department of Energy
- Other government agencies
- Outside vendors
- Educational institutions

A description of suggested learning proficiency activities, and the requirements for the continuing education and training program for technical program management personnel are included in Appendix A of this document. *[Note: Appendix A will be developed at a later date and is not included as part of the initial issuance of the standard.]*

## DUTIES AND RESPONSIBILITIES

The following are the typical duties and responsibilities expected of DOE defense nuclear facility technical personnel assigned to the technical program management functional area:

1. Manage and coordinate activities associated with assigned programmatic responsibility.

2. Develop, review and endorse budget requests to accomplish program goals and objectives.

3. Develop, review and endorse program plans to support the accomplishment of mission objectives in an efficient and effective manner.

4. Continuously monitor and evaluate cost, schedule and the completion of programmatic goals and milestones in accordance with approved plans.

5. Continuously monitor program activities in the field and ensure that the deliverables and outcomes associated with a program are technically adequate.

6. Prepare reports and make presentations to reflect overall program status, cost & funding issues, resource requirements, adherence to schedules and milestones, and other program issues.

7. Maintain effective communication with Headquarters, field elements, regulatory agencies, the public, and other stakeholders to accomplish program goals.

8. Ensure that safety is integrated into management and work practices to accomplish program objectives and ensure worker and public health and safety.

9. Ensure that related nuclear and environmental regulations and requirements are integrated into program plans and activities to protect personnel, the facility and the environment.

10. Ensure that programs comply with Departmental Directives, Federal and State Regulations and other binding agreements.

Additional duties and responsibilities specific to the site, facility, operational activities, and/or involved organizations shall be contained in the facility-specific qualification standard(s).

## BACKGROUND AND EXPERIENCE

The U. S. Office of Personnel Management's (OPM's) Qualification Standards Handbook establishes minimum education, training, experience, or other relevant requirements applicable to a particular occupational series/grade level, as well as alternatives to meeting specified requirements.

The preferred education and experience for technical program management personnel is:

1. Education:

   Bachelor of Science degree in engineering, science, or a related discipline or meeting the alternative requirements specified for engineers, or scientists in the OPM Qualification Standards Handbook.

2. Experience:

   Industrial, military, Federal, State, or other directly related background that has provided specialized experience in the management of technical personnel or programs. Specialized experience can be demonstrated through possession of the competencies outlined in this standard.

# REQUIRED TECHNICAL COMPETENCIES

Each of the competency statements defines the level of expected knowledge and/or skill that an individual must possess to meet the intent of this technical qualification standard. **The supporting knowledge and/or skill statements further describe the intent of the competency statements but are not requirements.**

**Note:** When regulations or Department of Energy directives or other industry standards are referenced in the qualification standard, the most recent revision should be used.

**1. A Technical Program Manager shall have a working level knowledge of the roles and responsibilities for the integrated safety management system and the Department's philosophy and approach to implementing Integrated Safety Management.**

Supporting Knowledge and/or Skills

a. Describe the overall objective of the Department-wide Functions and Responsibilities Manual and the similar lower-tier organization-level manuals developed by Headquarters Offices and Field Elements.

b. Give an example of a circumstance that might make it necessary or reasonable to deviate from the responsibilities and authorities identified in the Functions and Responsibilities Manual and describe the exemption process in DOE Manual 251.1, "Directives System Manual."

c. Explain the objective of Integrated Safety Management.

d. Describe how the seven Guiding Principles in the Integrated Safety Management Plan are used to implement an integrated safety management philosophy.

e. Describe the five core safety management functions in the Integrated Safety Management Plan and discuss how they provide the necessary structure for work activities.

f. Identify and discuss existing Department programs and initiatives that lead to successful implementation of Integrated Safety Management such as:

- Standards/Requirements Identification Documents (S/RIDs) and Work Smart Standards
- Contract reform and performance-based contracting
- Research and Development Laboratory activities related to safety management
- Operational Readiness Reviews (ORR)
- Nuclear Explosive Safety and Surety Program
- Enhanced Work planning
- Voluntary Protection Program
- ISO 14000

g. Discuss the purpose, content, and application of DOE Policy 450.4, Safety Management System Policy.

h. Explain the basis upon which the safety management functions could differ from facility to facility, and the basis to be used for applying ISM on a graded approach

i. Discuss the underlying safety management issues affecting the design, construction, operation, and maintenance of the Department's facilities, activities, and assets.

**2. A Technical Program Manager shall have a working level knowledge of nuclear safety management standards and documentation including their application.**

Supporting Knowledge and/or skills

a. Discuss the purpose, content, and philosophy, as appropriate to the position, of the following safety management standards for nuclear facility safety authorization basis:

- DOE Order 5480.21, Unreviewed Safety Questions
- DOE Order 5480.22, Technical Safety Requirements
- DOE Order 5480.23, Nuclear Safety Analysis Reports
- DOE Order 420.1, Facility Safety,
- DOE Order 425.1, Startup and Restart of Nuclear Facilities
- DOE-STD-1027-92, including Change Notice 1, Guidance on Preliminary Hazard Classification and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports
- DOE-STD-3006-2000, Planning and Conduct of Operational Readiness Reviews (ORR)
- DOE-STD-3009-94, including Change Notice 1, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports
- DOE-STD-3011-94, Guidance for Preparation of DOE 5480.22 (TSR) and DOE 5480.23 (SAR) Implementation Plans
- DOE P 410.1A, Promulgating Nuclear Safety Requirements

b. Discuss the purpose, content, and philosophy, as appropriate to the position, of the following safety management standards for nuclear explosive safety:

- DOE Order 452.1, Nuclear Explosive and Weapon Surety
- DOE Order 452.2, Safety of Nuclear Explosive Operations
- DOE Order 5610.12, Packaging and Offsite Transportation of Nuclear Components, and Special Assemblies Associated with the Nuclear Explosives
- DOE Order 5610.13, Joint Department of Energy/Department of Defense Nuclear Weapon System Safety, Security, and Control Activities

- DOE Order 5610.14, Transportation Safeguards System Program Operations
- DOE Order 5660.1B, Management of Nuclear Materials

c. Describe the process for determining the applicable set of standards for operation such as:

- Standards/Requirements Identification Documents (S/RIDs)
- Work Smart Standards

d. Discuss the application and implementation of the standards listed above in the development of site and facility safety management documents.

e. Identify the conditions and procedures used to maintain and modify safety documents.

f. Discuss the general types of standards established by industry standards organizations such as the following:

- American Nuclear Society (ANS)
- American National Standards Institute (ANSI)
- American Society of Mechanical Engineers (ASME)
- American Society for Testing and Materials (ASTM)
- International Organization for Standardization (ISO)
- National Fire Protection Association (NFPA)

g. Describe the relationship between Department of Energy Directives and industry and military standards.

**3. A Technical Program Manager shall have a familiarity-level knowledge of DOE Order 232.1, Occurrence Reporting and Processing of Operations Information.**

Supporting Knowledge and/or Skills

a. State the purpose of the Order.

b. Define the following terms:

- Event
- Condition
- Facility
- Notification report
- Occurrence report
- Reportable occurrence

c. Discuss the Department's policy regarding the reporting of occurrences as outlined in the Order.

d. State the different categories of reportable occurrences and discuss each.

e. Refer to Attachment 1 to DOE Order 232.1, Occurrence Reporting and Processing of Operations Information, and discuss the role of decommissioning personnel in decommissioning-related reportable occurrences.

**4. A Technical Program Manager shall demonstrate a familiarity level knowledge of Department of Energy (DOE) Order 5480.23, Nuclear Safety Analysis Reports, with respect to its impact on Department nuclear safety.**

Supporting Knowledge and/or Skills

a. Discuss the four basic purposes and objectives of Nuclear Safety Analysis Reports.

b. Describe the responsibilities of contractors authorized to operate defense nuclear facilities for the development and maintenance of a Nuclear Safety Analysis Report.

c. Define the following terms and discuss the purpose of each:

- Design Basis
- Engineered Safety Features
- Safety Analysis

d. Describe the requirements for the scope and content of a Nuclear Safety Analysis Report and discuss the general content of each of the required sections of the Report.

e. Discuss the approval requirements for the Nuclear Safety Analysis Report for new facilities and subsequent changes to the Report.

f. Define who approves facility operations prior to achieving Safety Analysis Report upgrade approval.

g. Discuss the provisions for temporary and permanent exemptions from the requirements of DOE Order 5480.23, Safety Analysis Reports.

h. Discuss the requirements for the contractor to maintain the Safety Analysis Report current.

**5. A Technical Program Manager shall demonstrate the ability to determine the existence of an unreviewed safety question (USQ) in accordance with Department of Energy (DOE) Order 5480.21, Unreviewed Safety Questions [10 CFR 830.112, Unreviewed Safety Questions, will supersede this order when issued.]**

Supporting Knowledge and/or Skills

a. Discuss the reasons for performing an unreviewed safety question determination.

b. Define the following terms:

- Accident analyses
- Safety evaluation
- Technical Safety Requirements

c. Describe the situations in which a safety evaluation is required.

d. Define the conditions for an unreviewed safety question.

e. Describe the responsibilities of contractors authorized to operate DOE nuclear facilities for safety evaluations.

f. Describe the actions to be taken by a contractor upon identifying information that indicates a potential inadequacy of a previous safety analyses or a possible reduction in the margin of safety as defined in the Technical Safety Requirements.

g. Discuss the actions to be taken if it is determined that an unreviewed safety question is involved.

h. Discuss the qualification and training requirements for personnel who perform safety evaluations.

**6. A Technical Program Manager shall demonstrate the ability to trend and analyze safety-related performance data.**

Supporting Knowledge and/or Skills

a. Discuss the key processes used in the trending and analysis of operations information.

b. Discuss the key process to develop and implement metrics and performance measures, validate performance against metrics and performance measures, and trend/analyze data to establish a continuous improvement program.

c. Discuss the importance and key elements of the following:

- Maintenance history
- Operational incident/occurrence report data
- Security infractions
- Safety incidents
- Radiation exposure and incident reporting
- Schedule variances
- Counterfeit and Suspect Parts

d. Using DOE Order 232.1A, Occurrence Reporting and Processing of Operations Information, discuss the role of a Senior Technical Safety Manager related reportable occurrences.

e. Discuss the Department's policy regarding the reporting of occurrences as outlined in DOE Order 232.1A, Occurrence Reporting and Processing of Operations Information.

f. Given an occurrence report, determine whether:

- Review process is adequate
- Causes are appropriately defined
- Corrective actions address causes
- Lessons learned are appropriate
- Corrective actions are completed

g. Given DOE Order 232.1A, Performance Indicators and Analysis of Operations Information, discuss the key elements of the Order and how they are applied.

h. Given incident/occurrence report data for a specified period, analyze the information for contributing factors and safety trends.

**7. A Technical Program Manager shall demonstrate a familiarity knowledge of the Price-Anderson Amendment Act of 1988 and its impact on Department of Energy activities.**

Supporting Knowledge and/or Skills

a. Describe the purpose and scope of the Price-Anderson Amendment Act.

b. Discuss the Act's applicability to the Department’s activities.

c. Discuss the civil and criminal penalties imposed on the Department, Management and Operating Contractors, and Subcontractors as the result of a violation of applicable rules and regulations.

d. Discuss the requirements associated with the topics below, as they are affected by Rule-making aspect of the Price-Anderson Amendment Act:

- Safety Analysis Reports
- Unreviewed Safety Questions
- Quality Assurance Requirements
- Defect Identification and Reporting
- Conduct of Operations at DOE Nuclear Facilities
- Technical Safety Requirements
- Training and Certification
- Maintenance Management
- Occurrences at DOE Nuclear Facilities

e. Discuss the role of the Technical Program Manager with respect to implementing the requirements of the Price-Anderson Amendment Act in accordance with the following:

- 10 CFR 820, Procedural Rules for DOE Nuclear Activities
- 10 CFR 830, Nuclear Safety Management
- 10 CFR 835, Occupational Radiation Protection
- DOE-STD-1082-94, Preparation, Review, and Approval of Implementation Plans for Nuclear Safety Requirements
- DOE-STD-1083-95, Requesting and Granting Exemptions to Nuclear Safety Rules
- Office of Enforcement and Investigation procedure "Enforcement of DOE Nuclear Safety Requirements under Price-Anderson Amendments Act of 1988"
- Office of Enforcement and Investigation procedure "Identifying, Reporting, and Tracking Nuclear Safety Noncompliance under Price-Anderson Amendments Act of 1988"

**8. A Technical Program Manager shall have a working level knowledge of formal configuration management as it relates to safety.**

Supporting Knowledge and/or Skills

a. Discuss the roles and responsibilities of the Technical Program Manager related to implementing configuration management programs.

b. Discuss the concept of configuration management and its importance in ensuring operational safety.

c. For the elements identified above, describe the possible effects on safe operations if they are ineffectively implemented.

d. Describe a typical configuration management process.

e. Given DOE-STD-1073-93, Guide for Operational Configuration Management Programs, discuss the relationship between the Standard and the DOE Orders.

f. Discuss each of the following elements of configuration management and how they contribute to safety and an effective configuration management program.

- Program Management
- Document Control
- Change Control
- Graded Approach
- Design Requirements
- Assessments

g. Discuss approved/recommended compensatory actions where inadequate configuration management exists and work is ongoing or to be initiated.

**9. A Technical Program Manager shall have a working level knowledge of quality assurance policies, programs, and processes.**

Supporting Knowledge and/or Skills

a. Describe the general requirements, purpose, interrelationships and importance of DOE Order 414.1A, Quality Assurance, and 10 CFR 830.120, Quality Assurance.

b. Describe the Department of Energy's and the management and operating contractor's responsibilities and requirements for implementing a Quality Assurance Program (QAP).

c. Discuss the role of the Technical Program Manager with respect to DOE Order 414.1A, Quality Assurance, and 10 CFR 830.120, Quality Assurance.

d. Discuss the process for obtaining an exemption to the above documents.

e. Describe the quality assurance criteria of DOE Order 414.1A, Quality Assurance, which address the following:

- Management
- Performance
- Assessment

f. Referring to G-830.120-Rev 0, Implementation Guide for use with 10 CFR 830.120, Quality Assurance, discuss the implementation of an effective Quality Assurance Program (QAP).

**10. A Technical Program Manager shall have a working-level knowledge of the Occupational Safety and Health Act (OSHA) requirements in the following documents:**

- **DOE Order 440.1A, Worker Protection Management for DOE Federal and Contractor Employees**
- **29 CFR 1910, Occupational Safety and Health Standards**
- **29 CFR 1926, Safety and Health Regulations for Construction**

Supporting Knowledge and/or Skills

a. Discuss the application and impact of OSHA on Department projects.

b. Identify the requirements in the OSHA that form the basis of authority for project management personnel in the oversight and management of a project.

c. Discuss the project manager responsibilities set forth in DOE Order 440.1A, Worker Protection Management for DOE Federal and Contractor Employees.

d. Discuss the construction contractor's responsibilities under DOE 440.1A, Worker Protection Management for DOE Federal and Contractor Employees:

- Establishing a safety program
- Worksite presence during work activities
- Compliance by subcontractors

e. Discuss the requirements for the performance of a hazard analysis and a hazard abatement/prevention program. Include in the discussion each of the following elements:

- Responsibility for implementation
- Purpose and content of the hazard analysis
- Worker awareness of the hazards and hazard abatement/prevention program

f. Discuss the contractor's responsibility for providing necessary training to employees in the area of safety and health on the worksite.

g. Discuss the project manager's responsibility for on-site safety and health inspections.

h. Discuss the contractor's required response to an identified safety and/or health hazard.

**11. A Technical Program Manager shall have a working level knowledge of hazardous waste as described in 40 CFR, Resource Conservation and Recovery Act.**

Supporting Knowledge and/or Skills

a. Define the term "hazardous waste."

b. Using the decision tree in 40 CFR Part 260, relate RCRA solid waste to hazardous waste and identify the applicable RCRA regulations for each.

c. Identify the kinds of hazardous wastes generated within the Department and their sources.

d. Describe the combination of facilities used to manage hazardous wastes at a site.

e. Discuss the current methods of disposing of hazardous wastes.

**12. A Technical Program Manager shall demonstrate a working level knowledge of the development, review, and assessment of the following National Environmental Policy Act documentation.**

- **EIS, Environmental Impact Statement**
- **EA, Environmental Assessment**
- **FONSI, Finding of No Significant Impact**
- **CX, Categorical Exclusion**
- **ROD, Record of Decision**

Supporting Knowledge and/or Skills

a. Describe the process for developing the listed documents.

b. Discuss the requirements for each document and describe the process for reviewing the listed documents.

**13. A Technical Program Manager shall demonstrate a working level knowledge of the development, review, and assessment of the following Resource Conservation and Recovery Act documentation.**

- **Notice of Violation**
- **RCRA Facility Investigation - Corrective Measures Study**
- **Consent Order & Settlement Agreement**

Supporting Knowledge and/or Skills

a. Describe the process for developing the listed documents.

b. Discuss the requirements for each document and describe the process for reviewing the listed documents

**14. A Technical Program Manager shall demonstrate a familiarity level knowledge of the purpose and requirements of the Comprehensive Environmental Response, Compensation, and Liability Act.**

Supporting Knowledge and/or Skills

a. Discuss the nine criteria set forth in 40CFR300, National Oil and Hazardous Substances Pollution Contingency Plan, concerning the performance of Cleanup Alternative Analysis.

b. Describe the requirements for public comment as they apply to the Comprehensive Environmental Response, Compensation, and Liability Act activities.

c. Discuss the purpose and history of the Comprehensive Environmental Response, Compensation, and Liability Act.

d. Discuss the relationship between the Comprehensive Environmental Response, Compensation, and Liability Act and all other environmental regulations,

especially the relationship between CERCLA and the Resource Conservation and Recovery Act.

**15. A Technical Program Manager shall demonstrate a working level knowledge of the management and negotiation of regulatory agreements and permits.**

Supporting Knowledge and/or Skills

a. Describe the responsibilities involved with the management of the following documents:

- National Pollution Discharge Elimination System
- Federal Facility Agreement
- Consent Order & Settlement Agreements
- Record Of Decision
- Resource Conservation and Recovery Act permit parameters
- Grant conditions

b. Discuss the requirements and methods of negotiation for the following documents:

- National Pollution Discharge Elimination System
- Federal Facility Agreement
- Consent Order & Settlement Agreements
- Record Of Decision
- Resource Conservation and Recovery Act permit parameters
- Grant conditions

**16. A Technical Program Manager shall have a working level knowledge of Project Risk Assessment.**

Supporting Knowledge and/or Skills

a. Perform an assessment of project risks that identifies critical systems, subsystems, and other factors that require focused work and resolution.

b. Identify the types of risks that are addressed in a project risk assessment.

c. Evaluate the assessed level of risk.

d. Describe the basis for the risk assessment.

e. Identify the critical project elements that contribute to the risk.

f. Identify the consequences of the risk.

g. Develop activities and alternatives to minimize the risk.

h. Identify the stage(s) of the project in which the risk exists.

**17. A Technical Program Manager shall have a working level knowledge of financial management necessary to integrate program resources and apply those resources to meet project commitments as described in Department of Energy (DOE) Guide 430.1-1, Life Cycle Asset Management.**

Supporting Knowledge and/or Skills

a. Define the term “Work Breakdown Structure” and discuss the process for developing one.

b. Define and compare the terms "cost estimate" and "budget."

c. Describe the process for preparing cost estimates and budgets.

d. Describe and compare labor and non-labor costs.

e. Describe and compare direct and indirect costs.

f. Discuss methods of reducing indirect costs.

g. Discuss the importance of determining the measure for work performed before work starts.

h. Describe methods for measuring work performed.

i. Discuss schedule and cost variance.

j. Given actual project management documentation and data, identify budgeted cost of work scheduled, budgeted cost of work performed, actual cost of work performed, and determine the schedule variance and cost variance.

k. Describe the types of Earned Value and how they are measured.

l. Explain what is meant by the term "baseline" as it relates to project management.

m. Describe the types of data required to forecast cost and schedule performance.

n. Define the term "Life Cycle Cost Estimate."

o. Given sample data, calculate "Life Cycle Cost Estimate."

p. Discuss the importance of formal change control with regard to project management.

q. Discuss the use of strategic planning, and how such planning relates to ongoing operations and safety of operations.

**18. A Technical Program Manager shall demonstrate a working level knowledge of assessment techniques (such as the planning and use of observations, interviews, and document reviews) to assess facility performance, report results, and follow up on actions takes as the result of assessments.**

Supporting Knowledge and/or Skills

a. Describe the role of mechanical system personnel in the oversight of Government Owned Contractor Operated facilities.

b. Describe the assessment requirements and limitations associated with a Technical Program Manager's interface with contractor employees.

c. Explain the essential elements of a performance-based assessment, including the areas of investigation, fact-finding, and reporting.

d. Explain the essential elements of a performance-based assessment including investigation, fact-finding, and reporting. Include a discussion of the essential elements and processes of the following assessment activities:

- Exit interviews
- Closure process
- Tracking to closure
- Follow-up
- Contractor corrective action implementation

e. Describe the actions to be taken if the contractor challenges the assessment findings and explain how such challenges can be avoided.

**19. A Technical Program Manager shall demonstrate a familiarity level knowledge of financial management practices and application of contractor resources to meet commitments to mechanical systems quality, safety, cost, and commitments.**

Supporting Knowledge and Skills

a. Describe the process for preparing cost estimates and budgets.

b. Describe and contrast direct and indirect costs.

c. Define and explain the relationship between the following terms:

- Budgeted cost of work scheduled (BCWS)
- Budgeted cost of work performed (BCWP)
- Actual cost of work performed (ACWP)
- Earned value (EV)

d. Describe the types of Earned Value, and how they are measured.

e. Describe the types of data required to forecast cost and schedule performance.

f. Define the term "estimate at completion" (EAC).

g. Discuss the importance of formal change control in relation to project management.

**20. A Technical Program Manager shall have a working level knowledge of technical contract management to assess contractor performance.**

Supporting Knowledge and/or Skills

a. Identify the three major DOE contract types and describe the characteristics, and the advantages and disadvantages of each.

b. Identify and discuss the types of contracting processes that are used to put major contracts in place.

c. Describe the "Accountability Rule," and discuss the role that it plays in contract management.

d. Discuss the following terms as they apply to financial accountability for the contractor:

- Incentives
- Fines and Penalties
- Third-Party Liabilities
- Loss of, or damage to Government property
- Allowable and Non-Allowable Costs

e. Discuss the technical oversight and qualifications required to assess contractor performance and the training of contractor employees.

h. Discuss the fee-based evaluation process including the development of performance criteria, conduct of the evaluation, and documentation and transmittal requirements for performance.

g. Identify who can make contractual requests or approvals of contract provisions, and the qualifications required of that individual(s).

h. Discuss the intent of the revised Department of Energy Acquisition Regulations (DEAR) clause regarding safety and the impact of contract reform on safety.

**21. A Technical Program Manager shall demonstrate the ability to communicate (both oral and written) when working or interacting with the contractor, stakeholders, and other internal and external organizations.**

Supporting Knowledge and/or Skills

a. Identify the various internal and external groups with whom mechanical systems personnel must interface in the performance of their duties.

b. Apply written communication skills in the development of:

- Assessment reports
- Technical reports
- Technical papers

c. Apply effective and appropriate communications skills when providing specific work or task directions to contractors.

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# APPENDIX A

## CONTINUING EDUCATION, TRAINING AND PROFICIENCY PROGRAM

The following list represents suggested continuing education, training and other opportunities that are available for technical program management personnel after completion of the competency requirements in this technical functional area qualification standard. It is extremely important that personnel involved with technical program management maintain their proficiency through continuing education, training, reading, or other activities such as workshops, seminars, and conferences. The list of suggested activities was developed by the subject matter experts involved in the development of the functional area qualification standard and is not all inclusive.

Based on the knowledge and experience of the subject matter experts, it is suggested that [***a number of***] learning activities per [***period of time***] are necessary to maintain proficiency in the technical program management functional area after completion of the competencies in the standard and other requirements of the Technical Qualification Program.

## LIST OF CONTINUING EDUCATION, TRAINING, AND OTHER ACTIVITIES

XXXXXXXXXXXXXXX

XXXXXXXXXXXXXXX

XXXXXXXXXXXXXXX

INTENTIONALLY BLANK

**DOE-STD-XXXX-2000**

**CONCLUDING MATERIAL**

**Review Activity:**

DOE
DP
EH
EM
NE
NN
ER
RW
FMC

Field Offices
AL
CH
ID
NV
OR
RL
SF
SR
Oak
RF

National Laboratories
LANL
LLNL
SNL
ORNL
ANL
BNL
INEEL

Area Offices
Amarillo Area Office
Kirtland Area Office
Princeton Area Office

**Preparing Activity:**
DOE-MA-31

**Project Number:**
TRNG-0014

**Associated Directives**:
DOE P 426.1